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Factors influence anaesthesia technician work in intensive care unit (ICU): Qualitative study

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ABSTRACT

Purpose: Anaesthesia technicians are part of the ICU medical team, their profession is critical to the healthcare environment for achievement and delivery of adequate care and they do the respiratory therapists jobs/roles as well. The aim of the current study was to find out factors affecting anaesthesia technicians working in ICU.

Materials and Methods: This was a qualitative single center study utilizing focus-group interviews (FGI's), and in-depth individual interviews. Twenty anaesthesia technicians working in the ICU were enrolled until data saturation was reached. Data were analyzed using Colaizz's method.

Results: Through data analysis, three themes including system-related factors, environmental-related factors, and individual-related factors were found.

Conclusion: The present study provided clear understanding of factors affecting anaesthesia technician's working in ICU and these were found to be longstanding. The factors included system, environmental and individual related. Utilizing the results of this study can help develop managerial programs for understanding the factor affecting anaesthesia technician and job satisfaction promotion. *(Open J Bio Med Res 2022;1:12-18.)*

Keywords

Anaesthesia technicians, factor influencing, job satisfaction, intensive care unit.

AUDIOABSTRACT

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INTRODUCTION

Generally, intensive care units (ICUs) are developed for several reasons; in fact, they all focus on critically ill patients who require close, frequent, and prolonged observation.[1] In such an environment, ensuring patient safety requires a multidisciplinary team who should cooperate effectively and share their knowledge and skills to achieve the aimed target.[2] Anaesthesia technicians are part of the ICU medical team responsible for collaborative medical management to patients. Their job is taking care and troubleshooting the ventilators , nebulizer treatments and airway clearance measures which are normally done by the respiratory therapists (RTs) in other countries/hospitalist because of how scant the RTs in Libya. These skills require highly trained staff and advanced medical resources and equipment that are not usually provided in other clinical wards.[3]

Intensive care units are characterized by a high level of stress and burnout environment; due to the work overload and involvement of anaesthesia technician in other types of patient care. From experience, this led to ICUs shortage in all hospitals with anaesthesia technicians who leave their jobs in ICUs. It can be particularly challenging to comprehend the reasons why anaesthesia technicians leave their jobs as there is scanty literature about respiratory therapy education, which led to a misunderstanding of how clinical instructors' behavioural characteristics influence graduated respiratory therapists.[4]

The reasons why anaesthesia technicians leave their jobs have never been studied on a national basis in Libya. Therefore, the purpose of this study is to understand factors that influence anaesthesia technicians that lead to leave or change their professional landscape.

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MATERIALS AND METHODS

Study design

A descriptive qualitative study was performed, utilizing focus-group interviews (FGI's), and in-depth individual interviews. It was carried out according to the criteria of reporting qualitative research checklist.[5] The study was approved by the Ethics Committee in the African Oncology Institute (Sabratha) Hospital.

Participants

Twenty anaesthesia technicians delivering direct care to patients in an ICU participated in the study. The study researchers sent each participant a letter of invitation and an information sheet and signed a consent form before taking part.

Data collection

Interview questions were structured according to the guidelines developed for focus group methodology[6]: a) introductory questions, b) transitional questions, c) key questions, and d) closing questions.

The questions were independently reviewed by a qualitative methodology expert and anaesthesia technicians who have more than 12 years of deep understanding of ICU practice. To increase the credibility of the study, interviews were piloted to a group of technicians (n=6). The same questions were utilized for individual in-depth interviews (Appendix 1).

Conducting FGIs and individual interviews

Between January and March 2020; 3 FGI's and 20 individual interviews were conducted. The interviews were conducted in a quiet area to concentrate on participant's statements and to help them speaking freely. Throughout the analysis, the raw data repeatedly revisited to reduce study bias and maintain neutrality. The FGI's were guided by the principle investigator (DA) and performed in the participant's private room where they were met around a conference table to mitigate anxiety and to encourage them to talk freely. The discussion continued until the theoretical saturation reached.[7] Twenty individual interviews were conducted to supplement the FGIs and to confirm the analysis. Each interview lasted 30 to 60 minutes.

Data analysis

Colaizz's method[8] was used to analyze the data. It is a descriptive phenomenological method of data analysis in nursing research that allows new knowledge to be discovered. The analysis of the data was conducted in several stages, which are including: a) one of the investigators transcribed all recordings into verbatim transcripts; b) a second researcher collected meaningful statements from words, phrases, and sentences related to the practicing in the ICU; c) categorized statements that have similar meanings searched for other interpretations of participants; d) extracted themes from relevant meanings and generate coding tree; e) organized the similar topics in more general and then narrowing them; f) the transcripts were repeatedly revised to confirm validation of the themes; g) the overall structure of the results were written down.

RESULTS

All the participants have a bachelor medical technology in anaesthesia and critical care. Participants experienced ranged between 5 to 13 years. Three thematic categories emerged from the data: system-related factors, environmental-related factors, and individual-related factors (Table 1).

System-related factors

The most participants had difficulty applying the learned concepts in their work environment and have felt there is a gap between their background and practice anaesthesia in the ICU. Participants stated:

"It is impossible for anaesthesia technicians to work skilfully with not much ICU knowledge and experiences" (Participants 1, 3, 16, 20).

"It would be nice if ICU modules are taught in the way shown in the real-world during the semesters. It would be more practical to learn from what we study and train in the actual field." (Participants 1-20).

In addition, all responses included more details about the lack of knowledge, ineffective communication (due to hierarchical gradient), and high patient to technician ratio, fatigue, and stress (due to lack of ability to take a break).

"Availability of continuing training courses to update our information would encourage retention working in an ICU". (Participants 1, 4, 7, 10, 12, 15, and 18).

"Caregivers have limited time as they do not stay 24 hours in intensive care; this has increased workload on us". (Participants 2, 3, 8, 14, 16, and 19).

"Well…. In some days, we work under stress and do not have even an hour free" (Participants 5, 6, 9, 11, 17, and 20).

Lack of support from the head of the department and staff feeling not recognized were reported as the common issues with undesirable effect on turnover intention.

"Lack of support from our manager makes us feeling worthlessness and hopelessness" (Participants 11 and 19).

"Well…… some staff members are refusing to involve us in their teamwork; causing the feeling of emptiness and discouragement". (Participants 2, 5, 10, 18, and 19).

Environmental-related factors

Unfamiliar clinical environmental setting was highlighted by all the participants include; working conditions, lack of clarity in team structure, and availability of resources (equipment, staff, and medicine).

"Unfamiliar clinical environments increase physical distractions". (Participants 1-20).

There was a uniform acknowledgment that the technicians have not experienced more difficulties in working in ICU than in performing essential nursing work.

"I can take care of patients who are under mechanical ventilation by working very hard but not cleaning patients, suction, and various mechanical operations" (Participants 3,15, and 18).

"We worked as nurse-cleaning patients, feeding, and walking; you know we studied anaesthesia, not nursing". (Participants 2 and 19).

"We do not have nurses here that's why we do the nursing job". (Participants 14 and 16,).

Individual participant's factors

Fifteen out of 20 of the participants reported personal health issues, family matters, and all the participants pointed out that workforce reparation (unsatisfactory salary and overload not paid).

DISCUSSION

This study identified three broad themes that researchers considered them very important in leaving anaesthesia technicians their workplace in ICU: a) system-related factors, b) environmental-related factors, and c) individual-related factors. These themes have been highlighted previously.[9] The themes found in the current study are strongly influenced by both educational curricula and healthcare practitioner cultures.

It is well known that the main target of clinical education is to develop a student's clinical knowledge and skills needed in his/her position. It will help to develop student's confidence and make them able to make critical decision making by themselves.[10]

Generally, clinical instruction is the base of anaesthesia technician curriculum. A study by Cullen,[11] though that clinical education is a main factor of teaching and learning. It has positive effect on the students' critical thinking and problem-solving skills. In the USA, the type and period of the clinical program differ from program to another.[12] This change was following the comment of Coalition for Baccalaureate and Graduate Respiratory Therapy Education (CoBGRTE) in 2005.[13] The CoBGRTE highlighted that around 937 hrs should be spent in clinical practice in respiratory therapy for undergraduates. In addition, most 4-year academic programs should start their clinical

Table 1. Main categories and subcategories.

Main categories	Subcategories
System-related	A mismatch between learning and practice.
	Continuing training courses.
	Leadership and management
Environmental-related factors	Unfamiliar clinical environment.
	Facing unexpected difficulties.
	Organisational climate (oppressive work environment)
	Poorly resources workplaces
Individual-related factors	Unsatisfactory Salary (poor overtime pay, inadequate benefits)
	Maintaining work-life balance
	Personal health issues
	Caring for family

rotation from the first year of the study program. It familiarizes students with their professional environment. This can help them to overcome challenges that may face during clinical practice and show them the serious nature of the real world of clinical practice.[14]

In the present study, the participants thought that inadequacy in ICUs education is a crucial issue that influences their job satisfaction. We noted that the educational content is delivering in a traditional way and lectures are mostly focused on anaesthesia modules not on ICU modules. This has been raised as one of the main educational challenges, which might be an ineffective way of teaching. From our point of view, the content of the educational program must be more practical and ICU modules should be started from the first year. Considering the particular nature of the anaesthesia technicians profession, it is needful for learners to have a real comprehensive material content. This makes them able to utilize their learning where needed. As it has been previously highlighted that respiratory therapy is a clinical instruction learning.[15] Therefore, effective clinical instructions should include clinical skills and critical thinking.

Therefore, enhancing the human resources in the ICU setting is one of the significant responses. Findings of a study[16] indicated that healthcare assistants, in general, have a weak social image and poor professional position. This led to high levels of depression, lower self-confidence and job dissatisfaction. Studies indicated that authority differences in leadership and management structure are heavily hierarchical.[17,18,19]

This can be affected by ICUs members' values, beliefs, and behavioural patterns. This perhaps, because of variance in experiences which enforce them to leave their workplace. Supportive organizational and management improve group communication and encourage positive emotions in the workplace. This can lead to reinforcement of effective activities in-group work and improve patient safety and job satisfaction.[17,18,19] On the other hand, studies showed that due to poor management and lack of support, clinical staff at the 'lower' end of speaking up experiences different types of workplace bullying.[20,21] This resulting in a higher degree of burnout due to emotional or physical harm imposed upon them by the organizational environment. The reason of poor communication may be due to psychologically difficult to challenge directives from an authority figure.[22] It has been suggested that communication between teamwork is crucial for people, particularly who are working in critical care and other healthcare settings. It is considered to be one part of threatening patient safety.[2] Professional communication with the working team is an important factor that influences healthcare professionals. In general, people normally tend to work in an environment where they are liked and have good communication and social support with their colleagues and supervisor.[23]

Studies showed that lack of empowerment and support of clinical staff deteriorates healthcare workers' commitment to the organization.[23,24] It also reduces job satisfaction, resulting in loss of confidence and depression. Consequently, this may lead to determent patient safety and effects on staff morale and turnover.[25,26] Furthermore, these factors may lead to increase healthcare workers' stress, burnout, and fatigue. This found to be significant and recurrent in most modern ICUs environment.[27] Unsolved such factors can lead to deteriorating patient safety in short term through impaired teamwork. On the other hand, in the long term they may have an effect on staff morale and turnover.[22] Participants pointed out that the shortage of manpower is associated with an increase of workload. Human resources are the core providers of services in healthcare systems. Its value is to ensure the health for individuals.[28] To provide care and treatment to the community in some ways needs the most appropriate use of such resources. Furthermore, having too few anaesthesia technicians may cost more money, given high costs of replacing burntout anaesthesia technicians and caring for patients with poor outcomes. Lack of proper equipment, and medication was another problem that participants pointed out. Consistent with this study other studies demonstrated that inadequate of such factors lead to reduce the quality of job, as they are essential for providing useful care.[29] Current discourse calls for urgent action to improve educational strategy and to resolve challenges highlighted by the anaesthesia technicians in Libyan ICUs clinical practice. Anaesthesia technicians as a profession is at risk of becoming too unattractive career as reflected by reduction in pre-registration at anaesthesia and critical care applicants.

CONCLUSION

Locally, healthcare institutes are striving to increase the number of healthcare workers inside ICUs, especially anaesthesia technicians. This necessity has been heightened by the current pandemic of coronavirus (COVID 19) epidemic. This study provided a clear and broad understanding of the factors affecting anaesthesia technicians working in critical care units. Many of the identified factors are longstanding and requiring rapid intervention to improve the working environment. Utilizing the findings of this study can help develop managerial programs. Appendix 2 outlines implications to practice according to research findings.

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CONFLICT OF INTEREST

The authors declared that there is no conflict of interest for their research study.

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Appendix 1. List of interview questions.

Question Type	Questions
Introductory	What kind of care do you provide to your patient as an anaesthesia ICU technician?
Transitional	What is your perception of working in ICU?
Key	Can you describe for me the characteristics of working in ICU that you like and those that you dislike? a) If so, what were these you liked? b) What were these things you dislike? c) What is the impact of those on technicians? Do you have any friends or colleagues who have left the ICU? a) Can you let me know why he/she left? What factors would you say were the most influential to you and your colleagues for leaving ICU? How does working in theatre compare with working in ICU? a) Particularly, how do you feel about working in OR? What do you think should be done to improve recruitment and retention of anaesthesia technicians to work in ICU? a) If so, what specific help do you need? b) How do you feel about the changes in working style in ICU when support and help are provided?
Ending	Is there anything you would like to add?

Appendix 2. Implication to practice.

Implication to practice
Identified factors affecting:
1. Identify factors affecting anaesthesia technicians at the local hospital level. 2. It is critical to assess their experiences before they transition into the clinical workforce. 3. Addressing multifactorial consequences of challenges identified. 4. Shard staff empowerment and autonomy strategies at ICUs, wards, and other staff group levels. 5. Improve working relationships with management or other healthcare staff. 6. Improve salary in relation to workload, job security, continuing education, and public service agreement will be motivations for continuing to work in the ICUs.
Improve the education program:
1. The content of the educational program must be more practical and the ICU module should be started from the first year. 2. Most of the four-year academic program should be spent in clinical practice from the first year. 3. The education program should provide problem-solving skills that are appropriate to the consequences of chronic conditions in ICUs environment. 4. Increased self-efficacy to improve clinical outcomes 5. Effective clinical instructions should integrate clinical skills and critical thinking.
Implement projects to identify and quantify impact, consider improvements required and disseminate good practice.